UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

EXPLANATION OF SIGNIFICANT DIFFERENCES AND START OF REMEDIATION ACTIVITIES

SCRDI BLUFF ROAD SUPERFUND SITE

Richland County, South Carolina **JUNE 1994**

This fact sheet is one of a series of seven designed to inform residents and local officials of the on-going cleanup efforts at the site. A number of terms specific to the Superfund process (printed in bold print) are defined in the glossary at the end of this publication.

INTRODUCTION

This fact sheet constitutes an ***Explanation of Significant Differences*** providing information to the public concerning the selected cleanup alternative for the SCRDI Bluff Road Site in Columbia, Richland County, South Carolina, and provides notice of the start of remediation activities. As the lead agency at this Site, EPA issued a ***Record of Decision (ROD)*** on September 12, 1990, following a ***Remedial Investigation/Feasibility Study (RI/FS)*** performed by the ***Potentially Responsible Parties (PRPs)***. The South Carolina Department of Health and Environmental Control (SCDHEC) is the support agency for remedial activities at the Site.

In the ROD, EPA stated that air emissions from the ***Soil Vapor Extraction (SVE)*** system, the system selected to treat contaminated soils, would be treated through use of vapor phase carbon adsorption filters (carbon filters) or by fume incineration (also known as catalytic oxidation or "CATOX"). Subsequent analysis during the remedial design process has shown that the use of CATOX (also known as fume incineration or catalytic oxidation) would be more efficient, allow greater operational flexibility, allow for higher extraction rates of contaminants, and be more cost effective than carbon filters. Also the use of catalytic oxidation rather than carbon filters eliminates the need to ship spent carbon to a landfill for disposal.

This Explanation of Significant Differences (ESD) represents part of EPA's public participation requirements under Section 117(c) of the ***Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)***, also known as Superfund. This ESD will become part of the ***Administrative Record (AR)*** file, which contains the information upon which EPA based its selection of the remedy described in the ROD. Additionally, the AR contains documents EPA considered in deciding to issue this ESD. The Administrative Record for the SCRDI Bluff Road Site is available to the public at the location listed on page 7. This fact sheet on the South Carolina Recycling and Disposal, Inc. (SCRDI) Bluff Road Superfund Site (Bluff Road Site) in Richland County, South Carolina has been prepared by the Region IV Office of the U.S. Environmental Protection Agency (EPA). The purpose of this fact sheet is to inform area citizens and local elected officials of the use of the CATOX unit for the soil remediation and to serve as an Explanation of Significant Differences (ESD). In addition, this ESD provides a history of past site activities and informs the public of the beginning of site remediation activities. EPA issued a separate fact sheet in early May 1994 advertising a public meeting and the beginning of a public comment period on possible issuance of an ESD documenting the use of a CATOX unit.

The public comment period ended on May 31, 1994 with no comments received by EPA. This is the seventh in a series of fact sheets on the Bluff Road Site. Copies of previous fact sheets, and other site specific information can be found in the local ***information repository***, which is listed on page 7 of this fact sheet.

SITE DESCRIPTION AND HISTORY

The SCRDI Bluff Road Site is located in Richland County, South Carolina about ten miles south of the City of Columbia along State Highway 48, also known as Bluff Road. The SCRDI property consists of a single rectangular parcel of land approximately four (4) acres in size. The site is directly across Bluff Road from the entrance to the Westinghouse Nuclear Fuel Rod Plant.

Surface water flow from the SCRDI property and the adjacent study area is directed to one of two main drainage channels, a drainage ditch parallel to Bluff Road that is a tributary to Myers Creek, and Myers Creek itself. Groundwater flow is to the south-south east.

The front half of the property was cleared, and then used for various industrial and commercial purposes. The back half of the site is heavily wooded. Two lagoons remain at the site that were utilized during the past operations. The SCRDI Bluff Road Site was operated as a collection center for Columbia Organic Chemicals from 1975 to 1982 to store, recycle, and dispose of chemical wastes. Before 1975, the site was operated as an acetylene gas manufacturing facility.

In March 1980, EPA conducted a site visit and saw a number of leaking storage drums. Samples of the drums contents and the adjacent surficial soils were collected and analyzed. The analyses showed the presence of volatile organic and other chemical compounds. An investigation of groundwater quality was performed by the South Carolina Department of Health and Environmental Control (SCDHEC) in the fall of 1980 which indicated that the groundwater had been impacted by chemical releases. Operations at the SCRDI Site were shut down in 1982.

A cleanup of the surface of the site was done in 1982 and 1983 under the direction of the USEPA and SCDHEC. Over 7500 drums containing chemicals were removed for proper disposal. Visibly contaminated soil and all above ground structures were also removed and clean fill material was used to fill excavations and provide clean access road surfaces.

In September 1983, the site was listed on the ***National Priorities List (NPL)*** under the (CERCLA). Remedial Investigation (RI) work was begun in 1984 and a Remedial Investigation/Feasibility Study (RI/FS), indicating cleanup alternatives for remaining soil and groundwater contamination was finalized in March 1990.

In May of 1990, EPA issued a Proposed Plan for the cleanup of the SCRDI Bluff Road Site. The Proposed Plan recommended thermal desorption for the cleanup of contaminated soils remaining at the site, and extraction and treatment for contaminated groundwater. During the public comment period on the Proposed Plan, comments were received that supported a different alternative, Soil Vapor Extraction (SVE) to clean up the soils. Under EPA oversight, a pilot scale test of SVE was conducted at the SCRDI Bluff Road Site in

July and August 1990. The pilot test demonstrated that SVE was a feasible remedial technology for this site and was capable of achieving the required target soil clean-up levels in the ***vadose zone.*** Concerns that EPA had regarding the amount of clay in site soils and the effectiveness of SVE were satisfactorily addressed. A Record of Decision (ROD) was issued for the site by EPA on September 12, 1990 which identified SVE as the recommended remedial alternative for soils, and groundwater extraction and treatment as the recommended alternative for groundwater.

In addition to specifying Soil Vapor Extraction as the preferred alternative for treatment of the contaminated soils at the SCRDI Bluff Road Site, the Record of Decision specifies two options for the treatment of the extracted vapors. The ROD specifies that the extracted vapors will be run through a vapor/liquid separator and then finally treated either with vapor phase carbon adsorption, or by fume incineration.

Since the ROD was issued in September 1990, EPA has negotiated with over 100 ***Potentially Responsible Parties (PRPs)*** that had either operated, or had hazardous wastes transported and disposed at the SCRDI Bluff Road Site. The end product of the negotiations was a Consent Decree (CD), a contractual agreement where the PRPs agreed to pay site cleanup and EPA oversight costs. Litigation with adjacent property owners over the PRP's and EPA's access to property surrounding the site caused significant delays (over two years) in beginning remediation of the site.

On September 3, 1993, in accordance with the requirements of the Consent Decree, the PRP's submitted a draft design for the SVE system, which both EPA and SCDHEC have reviewed and issued comments on. Of the two options identified in the ROD for SVE vapor treatment, the draft design and its revisions have selected fume incineration, specifically, a catalytic oxidizer, or CATOX unit, in lieu of the vapor phase carbon (carbon filters). The PRP's consultants have revised the draft design to incorporate EPA and SCDHEC comments.

The project is in the Remedial Design (RD) stage. The groundwater remediation is under design. This ESD marks the completion of the design for the soil remediation. The actual construction and operation of the remediation cleanup is called a Remedial Action (RA).

Catalytic oxidation is the exact process used to control exhaust emissions from automobiles - except in the case of automobiles, it is called a "catalytic converter". The process uses a heated catalyst to break down the vapors to primarily water and carbon dioxide.

EXPLANATION OF SIGNIFICANT DIFFERENCES

EPA policy requires that changes to RODs have either a ROD Amendment or Explanation of Significant Differences (ESD) issued to describe the rationale for the change, in this case, for the selection of CATOX over vapor phase carbon adsorption. EPA solicited comments prior to the issuance of this ESD allowing the use of CATOX in the SVE design. This fact sheet documents the reasons for the use of the CATOX unit in lieu of vapor phase carbon adsorption for the treatment of the vapors extracted by the SVE system.

Citizen concern over delays in the remediation of the SCRDI Bluff Road site was the primary reason for this fact sheet, the May 16th Public Meeting, and EPA's issuance of an ESD, as the ROD did document the possible use of fume incineration in the soil remediation by SVE. Where a possible change has been discussed in the ROD, issuance of an ESD is not required. To further emphasize the importance that EPA Region IV places on citizen input, a public informational meeting was held on May 16, 1994 in the neighborhood adjacent to the site, the Hopkins community. EPA provided a public comment period for this ESD that concluded two weeks following the meeting to decide whether to issue this ESD to implement the SVE with the CATOX unit rather than vapor phase carbon adsorption (carbon filters).

SOIL VAPOR EXTRACTION

While the previous removal actions conducted in 1982 and 1983 have removed all leaking containers of contaminants off the SCRDI property, soil contamination still remains at the site. The ***Baseline Risk Assessment*** presented in the Remedial Investigation Report concluded that the surface soils do not pose an unacceptable risk to either human health or the environment. However, the more highly contaminated subsurface soils continue to leach contaminants into the groundwater below the site at unacceptable concentrations. For this reason, a method of cleaning the contaminated subsurface soils was selected by EPA in the September, 1990 Record of Decision. That method is soil vapor extraction, also commonly called soil vacuum extraction or soil venting. The term "in-situ" is often added to the description to indicate that the soil is remediated in place without excavation.

In-situ soil vacuum extraction is a proven technology and was applied in an August, 1990 pilot test at the SCRDI Bluff Road Site as well as in full scale remediation programs at other Superfund Sites and chemical spills. SVE has been selected for remediation of soils at 107 Superfund Sites, including 7 in USEPA Region IV. SVE can remove ***volatile organic compounds (VOCs)*** and a limited number of ***semi-volatile compounds (SVOCs)*** from unsaturated soils and bedrock. The vapors removed from the contaminated soils containing the VOC's and SVOC's can be treated by either vapor phase carbon or fume incineration (such as the CATOX unit mentioned earlier). During the operation of the SVE system the effectiveness will be monitored by periodically monitoring contaminant concentrations in: 1) the treated soil, 2) the untreated vapor entering the system, and 3) in the treated vapor.

The SVE system to be constructed at the Bluff Road Site consists of 19 air vacuum wells installed in the unsaturated zone, up to depths of some 12 to 14 feet below ground surface. The actual wells will be constructed of PVC pipe with a pump and manifold system to apply a vacuum on the air wells. The extracted vapors will be processed through an in-line vapor/liquid separator (to separate water from the vapor) with the extracted VOC and SVOC vapors finally treated by either vapor phase carbon adsorption or a fume incinerator, in this case, a catalytic oxidizer. The separated water (a product of the extraction whether the carbon filters or fume incineration is used) will be containerized, treated as necessary and disposed of at an EPA approved facility. The treated air stream will be monitored, and will comply with the terms of a SCDHEC-issued air discharge

permit and discharged to the atmosphere.

The contractor selected to design and build the SVE system has experience in over 300 other SVE installations, including many other Superfund sites. The CATOX unit that has been proposed has been utilized at other remedial sites, including the Verona Superfund Site, with a treatment efficiency comparable to vapor phase carbon (carbon filters). Because the exact quantity of contaminants present in the subsurface soils is not known, the CATOX unit provides greater flexibility for continuous operations. There is no need to routinely shut down the system, as would be required to change carbon filters when their capacity is reached. This approach maximizes the system operating time and provides for a reduced remedial time period. The CATOX unit will also provide for total on-site treatment of the soils without the need for shipment of the spent carbon to a landfill. Finally, the CATOX unit can treat a greater mass of contaminants per day than a vapor phase carbon system, is more cost effective, and allows for higher extraction rates during initial operations.

SITE ACTIVITIES - CURRENT AND PLANNED

In September, 1993 site access was obtained to the properties surrounding the site, enabling remedial design activities to begin. A lengthy legal process was necessary to obtain access. Since access was granted, the condition of monitoring wells on and around the site was determined. Several wells were judged to be compromised for the collection of meaningful data, and were therefore abandoned. Several new wells were then installed and sampled. Early data indicated that the groundwater contaminant plume had expanded, therefore additional new wells were installed to determine the extent of the movement of the plume.

The plume is still sufficiently far from the boundary of the Hopkins-Helms property to the south of the site, and therefore poses no current threat to area well users or the creek. EPA Region IV will initiate appropriate limited monitoring of private wells between the plume and area residents to insure that groundwater contamination will not reach private wells. It should be noted that during the Remedial Investigation, and subsequent sampling events, no contamination was, or has been found in the lower aquifer.

Details of the two most current sampling events are available for public review at the site information repository listed on page 7 of this document.

During the week of April 25, 1994, a pump test was initiated at the site to determine the most current characteristics of the groundwater aquifer that the remediation will address. The water extracted from the aquifer for this pump test was monitored and treated before discharge to an area creek. The level of treatment for the extracted groundwater is specified in a permit issued by SCDHEC called a temporary NPDES permit. After the test results are interpreted, design will proceed for the groundwater remedy. Specific design elements include the location and sizing of extraction wells which will intercept the further travel potential of the groundwater contaminant plume. The goal of the groundwater remediation system will be to treat the groundwater to cleanup levels specified in the ROD. The above planned future events compose the groundwater remediation.

SUPPORT AGENCY COMMENTS

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed, and concurs, with this ESD.

STATUTORY DETERMINATIONS

Considering the information developed during the remedial design and described above, EPA believes that the selected remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for the SCRDI Bluff Road Site.

PUBLIC PARTICIPATION

Relative to the soil remediation, it is anticipated that the actual soil remediation will begin equipments construction will be complete within twelve weeks from the publication date of this ESD. After construction is completed, and an air discharge permit granted by SCDHEC, the system can begin operations. When the system is up and running, EPA will arrange a site tour for interested members of the community.

Additional fact sheets will be prepared and public meetings will be held as necessary to provide the public with current information on site activities. Members of the community and local officials can contact Cynthia Peurifoy or Steven Sandler at the 800 number listed below for periodic updates on site activities.

SITE INFORMATION REPOSITORY:

Southeast Regional Library
Richland County Public Library
7421 Garners Ferry Road
Columbia, South Carolina 29209
(803)776-2778

FOR MORE INFORMATION CONTACT:

Remedial Project Manager:
Steven Sandler
or
Community Relations Coordinator:
Cynthia Peurifoy

U.S. Environmental Protection Agency - Region IV
North Superfund Remedial Branch
345 Courtland Street, N.E.,
Atlanta, GA 30365
1 (800) 435-9233, or (404) 347-7791

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Richard Haynes, District Engineer
South Carolina Department of Health & Environmental Control
2600 Bull Street,
Columbia, South Carolina 29147
(803) 734-5487

This ESD is issued by EPA Region IV this 22nd day of June, 1994.

by Hankinson

John H. Hankinson, Jr.
Regional Administrator

GLOSSARY

Baseline Risk Assessment - A means of estimating the amount of damage a Superfund site could cause to human health and the environment if not cleaned up. Objectives of a risk assessment are to: help determine the need for action; help determine the levels of chemicals that can remain on the site and still protect human health and the environment; and provide a basis for comparing different cleanup methods.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) - A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The Act created a trust fund, known as Superfund to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Explanation of Significant Differences (ESD) - A document prepared by EPA to document and explain to the public any significant change made to a site's selected remedy, after a ROD has been issued for the Site. The ESD sets forth the reasons or issues EPA has considered in deciding to alter the remedy. EPA must publish a notice to the public of the ESD and its availability for public review, and may also elect to hold a public meeting concerning the ESD.

Information Repository - Materials on Superfund and a specific site located conveniently for local residents.

Potentially Responsible Parties (PRP's) - This may be an individual, a company or a group of companies who may have contributed to the hazardous conditions at a site. These parties may be held liable for costs of the remedial activities by the EPA through CERCLA Laws.

Remedial Investigation/Feasibility Study (RI/FS) - Two distinct but related studies, normally conducted together, intended to define the nature and extent of contamination at a site and to evaluate appropriate, site specific remedies.

Semi-Volatile Organic Compounds (SVOCs) - Carbon-containing chemical compounds that, at a relatively low temperature, fluctuate between a vapor state (a gas) and a liquid state.

Soil Vapor Extraction (SVE) - Remediation technology for collection of volatile organic compounds from soil for treatment.

Vadose Zone - That portion of the soil laying above the water table.

Vapor Phase Carbon Adsorption (Carbon Filters) - A devise which uses activated carbon to adsorb volatile organic compounds (VOCs) from a gas stream. The VOCs are later recovered from the carbon.

Volatile Organic Compounds (VOCs) - A group of organic compounds characterized by their greater tendency to change into a gaseous state.

REQUEST TO BE PLACED ON THE SCRDI BLUFF ROAD SUPERFUND SITE MAILING LIST

If you would like to be placed on the mailing list for the Bluff Road Site, please complete this form and return to: Cynthia Peurifoy, Community Relations Coordinator, EPA-Region IV, North Superfund Remedial Branch, 345 Courtland Street, Atlanta, Georgia 30365, or call 1-800-435-9233.

NAME: _____

ADDRESS: _____

_____

TELEPHONE: _____

AFFILIATION: _____

United States
Environmental Protection
Agency

North Superfund Remedial Branch

Region 4
345 Courtland Street, NE
Atlanta, Georgia 30365

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Penalty for Private Use
$300

Cynthia Peurifoy
Community Relations Coordinator
(SCRDI Bluff Road ESD - June 1994)